

A NEW SUBGENUS OF *NASUTITERMES* BANKS (ISOP.).BY THOS. E. SNYDER, *U. S. Bureau of Entomology.*

There has been considerable discussion among workers on termites in regard to the status of some of the subgenera established by the distinguished Swedish entomologist, Nils Holmgren. In some cases authors have considered subgenera worthy of generic rank. In others there is doubt as to the validity of the subgenera.

The subgenera under *Kaloterme*s Hagen and the subgenera under *Nasutiterme*s Banks (*Eutermes* Fritz Müller) are especially interesting. In *Kaloterme*s the subgenus *Neotermes* Holmgren is of doubtful validity. Material in collections in the United States leads me to believe it would be advisable not to separate species under *Neotermes* from *Kaloterme*s.

In the case of *Nasutiterme*s there are new species in collections in the United States which are intermediate in position between some of Holmgren's subgenera; for example, between *Diversiterme*s and *Velociterme*s. On the whole, however, Holmgren's classical work shows breadth of vision based on a survey of collections from all over the world and I believe the subgenera should be considered valid until more material is at hand.

The new subgenus herewith described differs from any known to the writer. The type species is from Panama.

The termite fauna of the Canal Zone and adjacent areas of the Republic of Panama, while not consisting of a large number of species (only 26 are known), contains some very interesting forms in the 15 genera or subgenera occurring in this region.

Genus **NASUTITERMES** Banks.**OBTUSITERMES**, new subgenus.

Soldier.—Two types of soldiers; head slightly (in large soldier) or greatly (in small soldier) constricted behind antennae. Mandibles without points. Nasus conical, fairly elongate and thick.

Outlines of head of soldiers somewhat similar to the large and intermediate soldiers of species in the subgenus *Diversiterme*s Holmgren. Antennae with 11 segments. Legs relatively short—length of hind tibia much less than length of entire head.

Post-clypeus of *worker* nearly as long as half its width.

Small, light colored species.

Genotype.—*Nasutiterme*s (*Obtusiterme*s) *biforma* Snyder from Quipo, Republic of Panama.

Nasutitermes (**Obtusiterme**s) **biforma**, new species.

Large soldier.—(Plate 1, figs. 1, 2). Head light yellow-brown, pale posteriorly but light castaneous-brown anteriorly, nasus light castaneous-brown with

reddish tinge; broader posteriorly than anteriorly, gradually narrowing (converging) towards anterior margin, slightly constricted behind antennae, convex in profile, with slight depression about center of head, with short hairs but few long hairs (two transverse rows, one anteriorly, the other posteriorly), and numerous short hairs; nasus conical, somewhat thick, slightly upturned at apex, with short and few long hairs near apex. Mandibles without points.

Antennae light yellow-brown, with 11 segments, pubescent; third segment subclavate, slender, longer than second or fourth segments; fourth segment shorter than second; segments becoming broader and longer from fourth segment to apex; last segment elongate, narrow and sub-elliptical.

Pronotum yellow, yellow-brown at anterior margin where slightly emarginate, saddle-shaped; posterior margin nearly a straight line; with short hairs.

Legs white with tinge of yellow, relatively not very long, slender, pubescent.

Abdomen yellow; with row of long hairs at base of each tergite, also short hairs on tergites.

Measurements:

Length of entire soldier: 2.50–2.85 mm.

Length of head with nasus: 1.0–1.1 mm.

Length of head without nasus (to anterior): 0.67 mm.

Length of nasus: 0.35–0.37 mm.

Length of pronotum: 0.11 mm.

Length of hind tibia: 0.57–0.60 mm.

Width of head (at posterior where broadest): 0.60–0.62 mm.

Width of head (at anterior): 0.42 mm.

Width of pronotum: 0.36–0.37 mm.

Small soldier.—(Plate 1, figs. 3, 4). Head of slightly lighter color than large soldier, nasus appears relatively darker, hairs the same; head broader anteriorly than posteriorly, markedly constricted in middle, in profile showing marked depression at center of head posterior to elevation at base of nasus; nasus conical, slender and slightly pubescent, upturned at apex as in large soldier; mandibles without points.

Antennae light yellow-brown, 11 segments, pubescent; third segment subclavate, slender, longer than second or fourth segments; fourth segment shorter than second; segments from fourth to apex becoming broader and longer; last segment elongate, narrow and sub-elliptical.

Measurements:

Length of entire soldier: 2.35–2.70 mm.

Length of head with nasus: 0.90–0.93 mm.

Length of head without nasus (to anterior): 0.57 mm.

Length of nasus: 0.32 mm.

Length of pronotum: 0.10 mm.

Length of hind tibia: 0.52–0.55 mm.

Width of head (at anterior where broadest): 0.42 mm.

Width of head (at posterior): 0.37 mm.

Width of pronotum: 0.36 mm.

Type locality.—Quipo, Republic of Panama.

Described from a series of two types of soldiers collected with workers at the type locality, May 18, 1923, by Messrs. I. Molino and J. Zetek. The termites completely riddled a small dead branch among leaf mold. Quite a few specimens of both the large and small soldiers of *Obtusitermes biforma* Snyder were also found with other termites, ants, etc., in the stomach of a Chiriqui three-toed anteater (*Tamanduas tetradactyla chiriquensis* Allen) killed by R. C. Shannon on Barro Colorado Island (Erwin's Island), Gatun Lake, C. Z., Panama, on June 17, 1923.

Type, soldier.—Cat. No. 26369, U. S. N. M.

***Obtusitermes aequalis*, new species.**

Large soldier.—Head yellow-brown, paler posteriorly and at base nasus castaneous-brown, broader posteriorly than anteriorly, narrows (converging) towards anterior margin, slightly constricted behind antennae, nearly straight but slightly convex in profile and with slight depression at about center of head; with fairly long hairs but also with numerous longer hairs; nasus *conical*, somewhat thick at base and slightly upturned at apex, with short and few long hairs near apex. Mandibles blunt, without points.

Antennae light yellow-brown with 11–12 segments pubescent; second, third and fourth segment subequal; segments become longer and broader toward apex; last segment slender, elongate, subelliptical.

Pronotum yellow-brown, darker at anterior margin, where slightly emarginate, saddle-shaped, elongate, not sharply upraised; anterior margin with long hairs; posterior margin nearly at straight line.

Legs yellowish, relatively not very long, slender, pubescent.

Abdomen yellow-brown, with dense fairly long hairs and rows of longer hairs at base of each tergite.

Measurements:

Length of entire soldier: 2.80–2.90 mm.

Length of head with nasus: 0.97–1.0 mm.

Length of head without nasus (to anterior): 0.60 mm.

Length of nasus: 0.37 mm.

Length of pronotum: 0.15–0.16 mm.

Length of hind tibia: 0.60 mm.

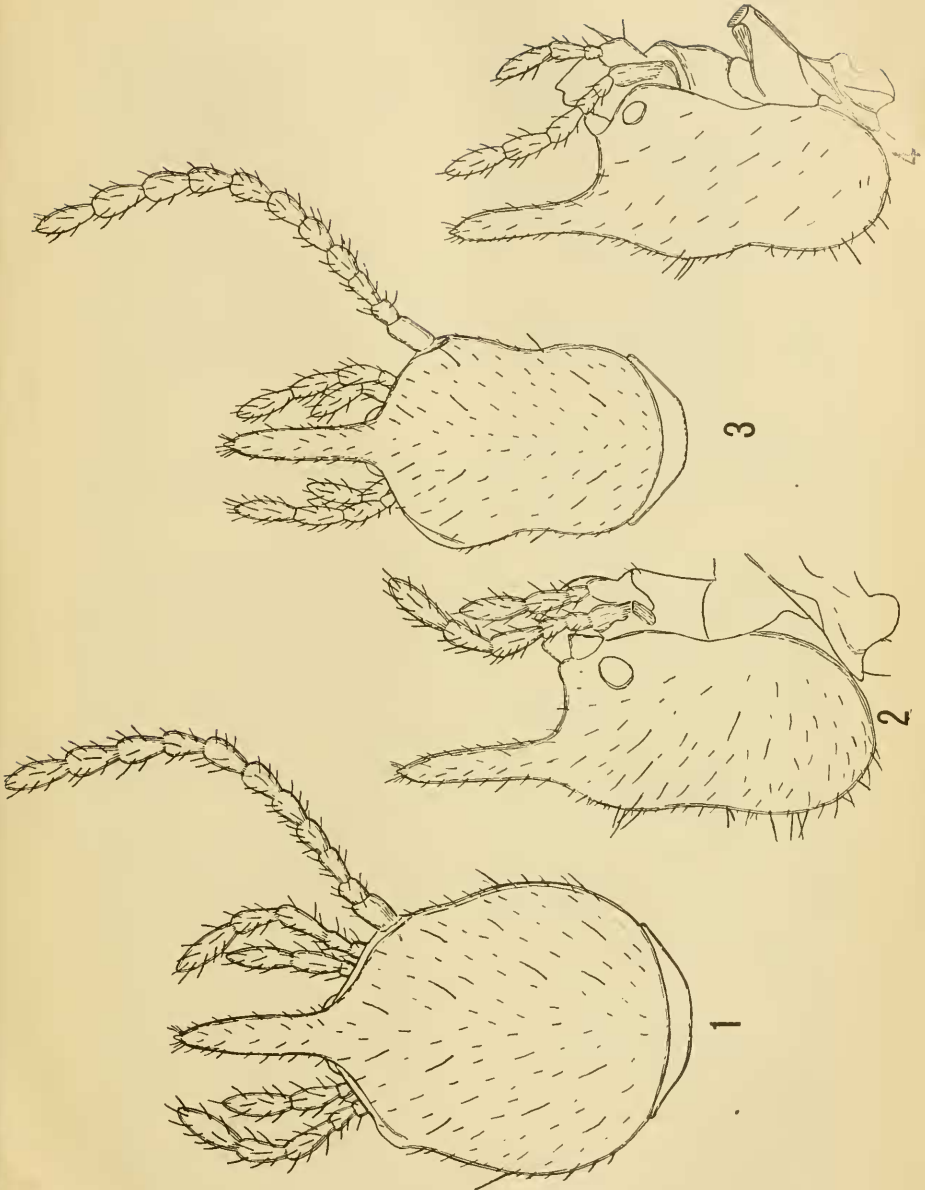
Width of head (at posterior where broadest): 0.60 mm.

Width of head (at anterior): 0.45 mm.

Width of pronotum: 0.30 mm.

Worker: Head yellow-brown, with prominent white longitudinal line, meeting epicranial suture at frontal gland; antennae with 13–14 segments; length of post-clypeus nearly one-half its width.

This species is referred to the subgenus *Obtusitermes* which contains species with two types of soldiers. In connection with *aequalis*, however, only one (the large type) was found. *Aequalis* is darker colored than *biforma* Snyder and differs in size.



SNYDER—OBTUSITERMES

Type locality.—Camagüey, Cuba.

Described from seven soldiers (large type) found with workers at The Colony "Elia" at the type locality, July 11, 1923, in a stalk (stump) of sugar cane by Prof. B. T. Barreto of the Estacion Experimental Agronomica, Santiago de las Vegas, Cuba; No. 9016.

Type soldier.—Cat. No. 26489, U. S. N. M.

EXPLANATION OF PLATE I.

- Fig. 1. *Obtusitermes biforma* Snyder. Large soldier. Dorsal view of head.
 Fig. 2. *Obtusitermes biforma* Snyder. Large soldier. Lateral view of head and pronotum.
 Fig. 3. *Obtusitermes biforma* Snyder. Small soldier. Dorsal view of head.
 Fig. 4. *Obtusitermes biforma* Snyder. Small soldier. Lateral view of head and pronotum.
 Drawings by Miss E. T. Armstrong.

NOTE ON MATING FLIGHT OF *HEXAGENIA BILINEATA* SAY¹
 (PLECTOPTERA).

BY T. E. SNYDER, U. S. Bureau of Entomology.

On June 15, 1923, the mayfly (*Hexagenia bilineata* Say.) became abundant along the shores of the Potomac River between Georgetown and Chain Bridge, D. C. During the day they settled in large numbers on branches of trees along the river banks, but every evening shortly after dusk swarms of these winged mayflies engaged in an interesting mating flight. They left the branches of the trees and hovered over the water nearby in such large numbers as to make quite a rustling noise as they flew. This mating flight lasted about half an hour, until nearly dark. The first few nights that the flight was observed, two adults were very seldom seen flying off together; but on June 20th such pairing was much more frequent. Invariably the pairs flew off over the water, with sometimes a third adult attempting to join the pair.

Birds such as grackles, catbirds, etc., fed on these insects in great numbers during the day time.

Each evening the mating flight began with a few individuals, reached its height with maximum numbers of adults, and then gradually subsided with a decreasing number. These flights could be observed all along the river front in the vicinity of bushes or the lower branches of trees from whence they had come, and they extended throughout a period of about one week.

A similar mating flight has been noted by the writer in connection with *Tabanus americanus* Forster.

¹Determination by Nathan Banks.